

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:

Keith **WOODS**

Serial No:

Filed: On even date herewith

Title: IRIS DIAPHRAGM

August 5, 2003

Mail Stop Patent Application
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

PRIORITY CLAIM

Sir:

Claim is hereby made on behalf of the above-noted Applicant for priority under the International Convention based upon the corresponding Great Britain Patent Application 0218224.4 of August 6, 2002.

A certified copy is attached.

Respectfully submitted,
DILLER, RAMIK & WRIGHT

By: 

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Attachment



INVESTOR IN PEOPLE

USA.

The Patent Office
Concept House
Cardiff Road
Newport
South Wales
NP10 8QQ

I, the undersigned, being an officer duly authorised in accordance with Section 74(1) and (4) of the Deregulation and Contracting Out Act 1994, to sign and issue certificates on behalf of the Comptroller-General, hereby certify that annexed hereto is a true copy of the documents as originally filed in connection with the patent application identified therein together with the Statement of inventorship and of right to grant of a Patent (Form 7/77), which was subsequently filed.

In accordance with the Patents (Companies Re-registration) Rules 1982, if a company named in this certificate and any accompanying documents has re-registered under the Companies Act 1980 with the same name as that with which it was registered immediately before re-registration save for the substitution as, or inclusion as, the last part of the name of the words "public limited company" or their equivalents in Welsh, references to the name of the company in this certificate and any accompanying documents shall be treated as references to the name with which it is so re-registered.

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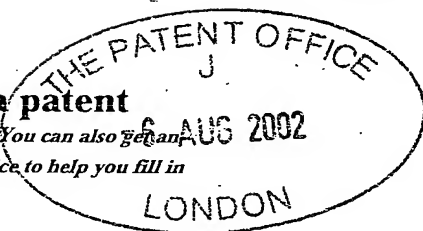
Signed *AmBrewster*

Dated 9 June 2003



Request for grant of a patent

(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)



The Patent Office

Cardiff Road
Newport
South Wales
NP9 1RH

1. Your reference

JC/SPY

2. Patent application number

(The Patent Office will fill in this part)

0218224.4

06 AUG 2002

3. Full name, address and postcode of the or of each applicant (underline all surnames)

Wilkes Iris Limited

8440422001

Patents ADP number (if you know it)

Widco Works,
Burnside Mews,
London Road,
Bexhill-on-Sea,
Sussex. TN39 3LE

If the applicant is a corporate body, give the country/state of its incorporation

GB

4. Title of the invention

Iris Diaphragm

5. Name of your agent (if you have one)

"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)

J.C. BRIDGE-BUTLER

G.F. REDFERN & CO.
7 Staple Inn,
Holborn,
London WC1V 7QF

Patents ADP number (if you know it)

14120025

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and (if you know it) the or each application number

Country

Priority application number
(if you know it)

Date of filing
(day / month / year)

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application

Date of filing
(day / month / year)

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (Answer 'Yes' if:

- a) any applicant named in part 3 is not an inventor, or
 - b) there is an inventor who is not named as an applicant, or
 - c) any named applicant is a corporate body.
- See note (d))

Yes

Patents Form 1/77

9. Enter the number of sheets for any of the following items you are filing with this form.
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Continuation sheets of this form

Description

5

Claim(s)

Abstract

Drawing(s)

2

10. If you are also filing any of the following, state how many against each item.

Priority documents

Translations of priority documents

Statement of inventorship and right to grant of a patent (Patents Form 7/77)

Request for preliminary examination and search (Patents Form 9/77)

Request for substantive examination (Patents Form 10/77)

Any other documents (please specify)

11.

I/We request the grant of a patent on the basis of this application.

Signature

Date

6 August 2002

12. Name and daytime telephone number of person to contact in the United Kingdom

J.C. BRIDGE-BUTLER

020 7242 7680

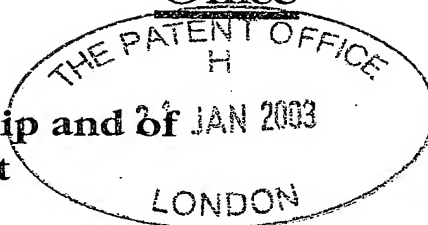
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Notes

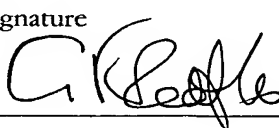
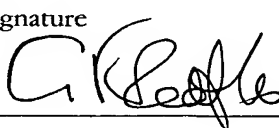
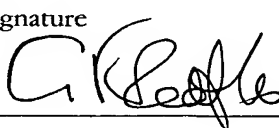
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Statement of inventorship and of right to grant of a patent



The Patent Office

Cardiff Road
Newport
Gwent NP9 1RH

1. Your reference	JC/SPY				
2. Patent application number (if you know it)	02 18224.4				
3. Full name of the or of each applicant	WILKES IRIS LIMITED				
4. Title of the invention	IRIS DIAPHRAGM				
5. State how the applicant(s) derived the right from the inventor(s) to be granted a patent	By virtue of Section 39 of the Patents Act 1977				
6. How many, if any, additional Patents Forms 7/77 are attached to this form? (see note (c))					
7.	<p>I/We believe that the person(s) named over the page (and on any extra copies of this form) is/are the inventor(s) of the invention which the above patent application relates to.</p> <table border="0"> <tr> <td style="text-align: right;">Signature</td> <td style="text-align: right;">Date</td> </tr> <tr> <td style="text-align: right;"></td> <td style="text-align: right;">20 January 2003</td> </tr> </table>	Signature	Date		20 January 2003
Signature	Date				
	20 January 2003				
8. Name and daytime telephone number of person to contact in the United Kingdom	Jerry Bridge-Butler 020 7242 7680				

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Enter the full names, addresses and postcodes of the inventors in the boxes and underline the surnames

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Great Britain.

A British subject

8548968001

Patents ADP number (if you know it):

Patents ADP number (if you know it):

Reminder

Have you signed the form?

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Iris Diaphragm

This invention relates to an iris diaphragm which is particularly, but not exclusively, for use with spot lights.

An iris diaphragm comprises a number of overlapping curved leaves mounted in a circle around an aperture, which can be rotated in unison to adjust the diameter of the aperture. Iris diaphragms are commonly used with spot lights, to narrow or broaden the beam of light. They are also used to regulate the amount of light entering an optical instrument, for example a camera.

An iris diaphragm comprises a base provided with an aperture, a rotatable element provided with a corresponding aperture, and a number of curved leaves, one end of which are mounted in a fixed pivotal position to one of the element or base, and the other end of which are mounted in a sliding pivotal position to the other of the element or base.

The leaves are mounted at equal points around the circumference of the aperture, and are so shaped that the curve along their inner edge corresponds to the curvature of the aperture, so when they are in the fully retracted position the aperture is unobstructed.

When the element or the base is rotated the leaves are rotated about their fixed pivot and cross over the aperture. Most irises can move from a fully open position to a fully closed position in approximately 110 degrees of rotation.

Spot lights are commonly cumbersome in size and shape, and can be fitted with adjustable colour filters and various electronic or electric components. The iris diaphragm is mounted before the light chamber, in the vicinity of any filters or the like.

An iris diaphragm comprising an aperture corresponding to the size of a spot light can be large in size. In particular, the base, rotating element, fixed and sliding pivots combine to produce an item which can be several centre metres in width. This can be a problem when several independent items of equipment have to be mounted before a spot light.

The present invention is intended to overcome some of the above problems.

According to the present invention an iris diaphragm comprising an annular base, an annular rotatable element and a number of leaves which can be mounted to form a variable aperture, each leaf extending between the base and element and being connected thereto in a pivotal relationship, is characterised in that a first end of each of said leaves is pivotally connected to an opening provided on the element or base by means of a burst hole joint, and a second end of each of said leaves being rotatably secured in a sliding relationship to a slide provided on the base or the element by means of a slide pin secured to the leaf.

Preferably the burst hole joints attach the leaves to the rotatable element, and the slides are provided in the base.

The leaves can be mounted at equal points around the circumference of the iris aperture, and the inner edge of the leaves can be provided with a curve which corresponds to the curvature of the aperture.

The burst hole joints can comprise an opening, through which the material of the leaf has been punched. The parts of the leaf which extend through the opening are folded back against the rotatable element to provide a secure fixing.

The second ends of the leaves are provided with slide pins, which are adapted to fit inside the slides. The slide pins can be of a known construction, and can comprise a cylindrical pin element which can be secured to the leaf in any known way.

In one construction the iris can be provided with 18 leaves.

The present invention can be performed in various ways but one embodiment will now be described by way of example and with reference to the accompanying drawings in which:

Figure 1 is a cross sectional side view of a diaphragm iris according to the present invention, showing one leaf mounted in the iris;

Figure 2 is a sectional plan view of the diaphragm iris as shown in Figure 1; and,

Figure 3 is a further sectional plan view of the diaphragm iris as shown in Figure 1.

In Figure 1 an iris diaphragm 1 comprises a base 2, a rotatable disc 3 and a number of leaves 4 (only one leaf shown in Figure 1). A first end 5 of the leaf 4 is rotatably attached to an opening 6 provided in the disc 3, by means of a burst hole joint 7. A second end 8 of the leaf 4 is provided with a pin 9 which is positioned in a slide 10, which is provided in the base 2.

As shown in Figure 2 the disc 3 is provided with eighteen apertures 6, one for each of the eighteen burst hole joints 7 on each of the overlapping leaves 4. Accordingly, as shown in Figure 3 the base 2 (the outline of which is shown in broken lines) is provided with eighteen slides 10, and each leaf 4 is provided with a pin 9, which is positioned in one slide 10.

The disc 3 is positioned in a slot 11 (as shown in Figure 1) provided in the base 2, and it is provided with an operating handle 12, positioned in a further slot 13 (as shown in Figure 2) provided in the base 2.

When the disc 3 is rotated by the handle, the end 5 of each leaf 4 is drawn in a circular direction by the joints 7. The joints 7 also rotate on their own axis due to the second ends 8 of each leaf 4 being positioned in the stationary slides 10.

As a result of the above described action, each pin 9 is moved along each slide 10. In the movement from fully retracted to fully advanced, each pin moves first towards the centre of the iris aperture 14, then back in the opposite direction as the joints 7 follow their circular course.

The leaves 4 are so shaped that the above described actions result in the iris aperture 14 closing. The aperture can be opened, or placed in any desired position, by the positioning of the handle 12.

Iris diaphragm 1 is provided with a narrow width, Distance A, due to the narrow width of the burst hole joints 7 and the pin 9 and slide 10 mechanisms. It will be appreciated that Distance A is restricted only by the capacity to machine the pin 9 onto the leaf 4. The width of the iris diaphragm 1 is determined by size of pin 9 which can effectively be attached to the leaf 4.

In an alternative construction the handle 12 is connected to an operating means, for example an electric motor, which can be electronically controlled.

It will further be appreciated that the above described invention can be used in any application provided with an iris, for example optical equipment or cameras.

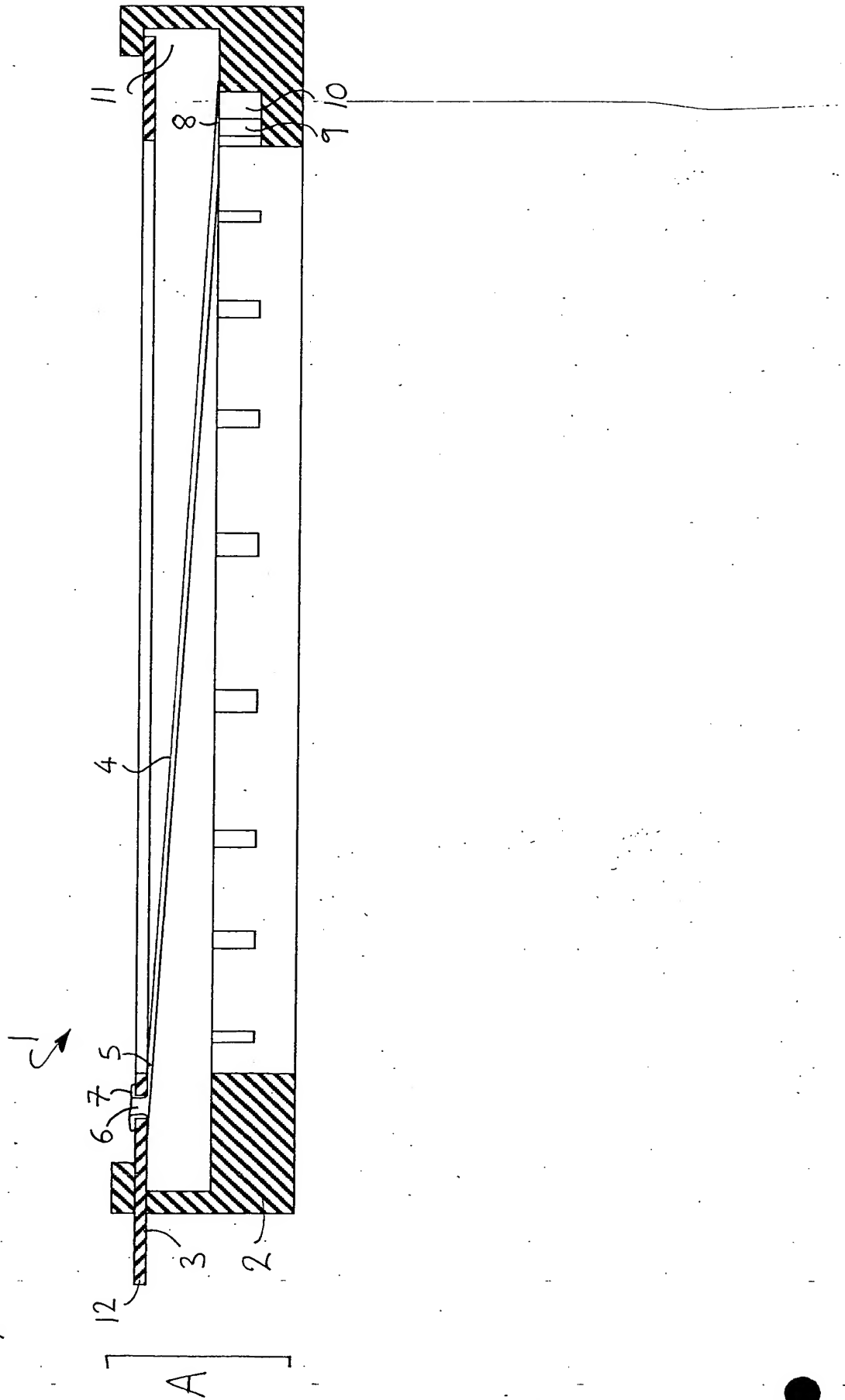
The above invention can also be used in a dual plane iris diaphragm of the known type, which closes the aperture completely.

In an alternative construction, not shown, the pivotal arrangements are reversed and the openings 6 are provided on the base 2, and the slides 10 are provided on the rotatable element 3.

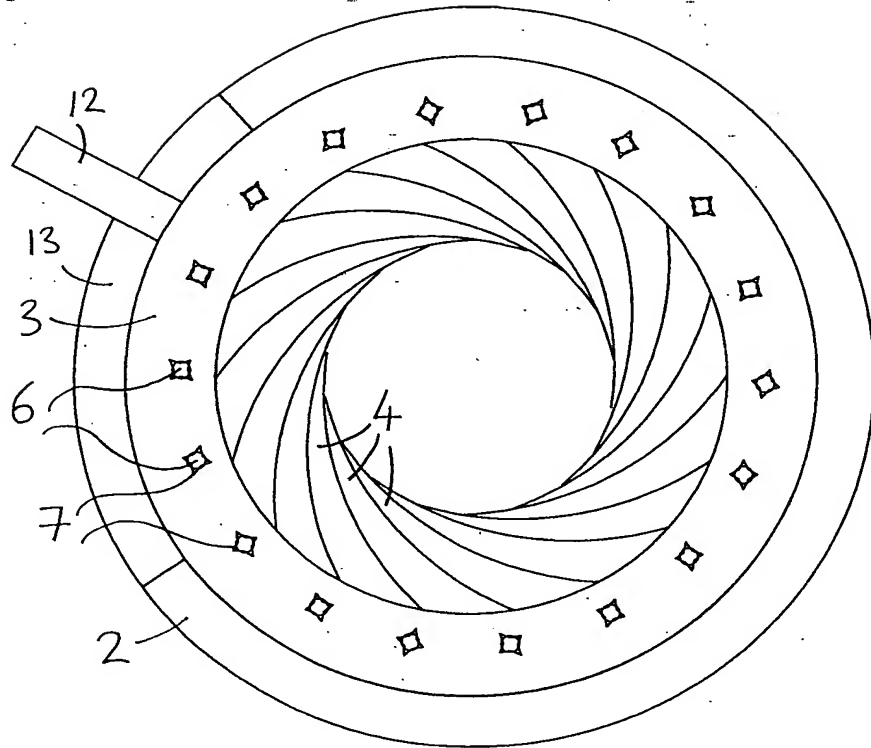
Thus an iris diaphragm is provided with a narrow width, so it can be readily incorporated into a spot light rig. Further, a novel iris diaphragm construction is provided, which has a small number of working parts, and which can be readily constructed.



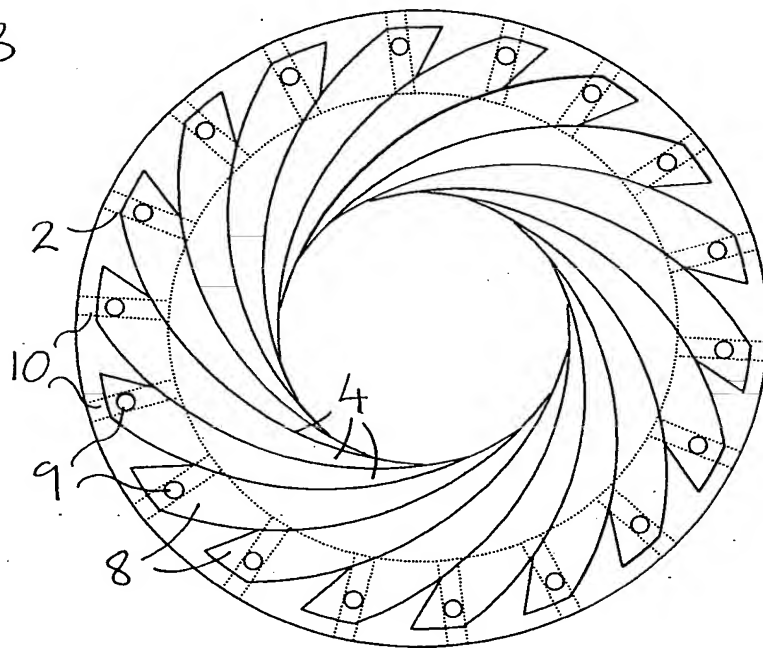
FIG. 1



Fig²



Fig³



1.

